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The effect of board of directors attributes on corporate risk-taking: before and during COVID-19

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Abstract

This study investigates the effect of the board of directors' attributes on the corporate risk-taking of listed financial firms in Oman. A total of seven board attributes such as board ownership, shareholder ownership, CEO duality, board structure, audit committee independence, audit committee and board gender diversity are assimilated into an index for this study. The sample consists of 168 firm-year observations for financial firms listed on the Muscat Stock Exchange for the period 2016 to 2021. Before COVID, the board had no significant impact on corporate risk-taking. However, during COVID, a strong board took low risks indicating the appropriate assessment of the pandemic and cautiously steering the company activities. The result has important practical implications indicating that board attributes are crucial for crisis periods as they can help in navigating the company's decision-making.

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1. Introduction

There has been a heightened emphasis on corporate governance and risk management. The Financial Reporting Council (FRC) in the United Kingdom, for instance, has released a publication titled *Boards and Risk*, which outlines the duties of boards of directors in relation to "risk decision-making," the establishment of "the company's approach to risk, setting its culture, risk identification, risk management oversight, and crisis management." Additionally, changes in business governance, as specified in The Sarbanes–Oxley Act [1] in the United States, provide explicit guidance concerning internal control measures and board characteristics with the aim of enhancing business accountability and reducing the risk of firm collapse. In the aftermath of the global financial crisis, banking supervisors, politicians, and other academic experts have widely asserted that the failures in financial institution governance practices can be attributed to such a great crisis to some extent. Various studies have supported this notion [2–4]. According to several studies, Corporate governance mechanisms have proven to be effective in managing agency difficulties and reducing information asymmetry [5]. However, it remains unclear whether enhanced corporate governance leads to increased risk-taking or modifies managers' risk preferences for stability [6].

Given that corporate risk-taking is crucial to the performance of firms and long-term sustained economic development, investigating the determinants of corporate risk-taking has been a longstanding pursuit. Corporate risk-taking entails the willingness of firms to take risks in pursuit of profitable opportunities. Previous research has identified managerial attributes [7], corporate governance [8], institutional variables [9], and external environmental factors such as economic policy uncertainties [10] as determinants of company risk-taking. This study contributes to the literature by providing empirical evidence of how the board of directors' attributes composed as an index impact the corporate risk-taking of the financial sector in China.

Oman's Vision 2040 aims to achieve global outreach by promoting a diverse and sustainable domestic economy. The vision aims to raise the share of the non-oil sector's contribution to the total GDP from 83.9% in 2030 to 91.6% by 2040 [11], as a crucial performance measure. Consequently, the financial sector has been selected to play a critical role in achieving this goal. This study investigates the impact of the board of directors on corporate risk-taking in the listed financial sector firms in Oman. The results suggest strong board index lead to lower risk-taking and this relationship holds during COVID.

The present analysis contributes to the existing literature by examining the impact of board index on corporate risk taking and their interplay in generating value for bank shareholders at both bank and market levels. The study posits that board index play a crucial role in determining corporate risk-taking decision. As per the agency theory, managers tend to prioritize their personal interests over those of the bank shareholders when utilizing the bank's resources. Thus, board of directors play a crucial role in controlling this behavior. An all-encompassing board index or governance index is utilized to measure the internal structure and procedures of the board of directors, rather than the external elements of governance or the manner in which the board engages with stakeholders. Shareholders and other stakeholders can employ this index to evaluate the level of risk-taking in organizations based on their governance framework.

The remainder of the work is organized into following sections: the literature review (section 2), the methodology (section 3), the empirical results (section 4), and the conclusion and policy implications (section 5).

2. Literature Review

Ferrero-Ferrero, Fernández-Izquierdo and Muñoz-Torres [12] showed that the board of directors are sensitive to the crisis as they take less risks during the period. During the present global financial crisis, some practitioners, academics, and regulators contend that corporate governance procedures have failed to protect the interests of stakeholders equally, boosting corporate risk-taking without effective management. Wang [13] found out that both management pay to performance sensitivity (Δ) and managerial pay to company risk sensitivity are inversely related to board size, implying that smaller boards provide CEOs with greater incentives and require them to carry more risk than bigger boards. Controlling the impact of executive remuneration schemes on corporate investment and finance strategy, that makes him sum up to the result that organizations with smaller boards invest with lower leverage but higher risk.

Prior study findings show that corporate governance and company risk taking have a detrimental impact. The study also employs four governance factors pertaining to the characteristics of the board of directors. The findings show that the size of the board of directors, independence of the board, and board committees have a detrimental influence on business risk taking in Jordan [14]. Jabari and Muhamad [15] posit that having more women on the board of directors reduces the probability of bankruptcy for publicly traded Islamic banks, and that the educational diversity of BOD and SSB members has a substantial effect on the risk-taking of Islamic banks, regardless of whether they are publicly traded. The presence of women continues to have a favorable impact on big banks' capital adequacy ratios. The findings also demonstrate that having at least two female directors decreases banking risk considerably. Furthermore, the inclusion of female board members has little effect on Islamic banks' risk-taking behavior. The COVID-19 health crisis's moderating influence is only more effective for large banks than for small ones [16].

D'Amato and Gallo [17] suggest cooperatives, assume less risk than joint-stock banks and have lower board turnover and education. While board education mediates the association between the cooperative model and bank risk-taking, there is no indication of board churn in the research. The presence of women on the BoD and TMT has varied effects on business risk-taking. Women reduce lawsuit risk, failure risk, and operational risk while having no influence on bankruptcy risk. Financial risk, manipulation risk, total risk, idiosyncratic risk, and systematic risk all have contingent consequences on women [18].

Poletti-Hughes and Briano-Turrent [19] discuss women on boards are important for more than just ethical reasons; they are also important from a commercial standpoint since they encourage risk-taking. The presence of independent female directors on the board has been demonstrated to raise venture risk, as well as the anticipation of improved future performance. In Latin America, the number of non-independent female directors on boards dramatically raises the probability of poor performance. The inclusion of women on boards of directors minimizes financial risk for institutions. The inclusion of at least two female directors decreases banking risk dramatically. The participation of female board members has no effect on Islamic banks' risk-taking behavior. The analysis shows that the COVID-19 health crisis's moderating influence is only more effective for large banks than for small ones [20].

The audit committee has a mixed association with bank risk, but board independence and CEO authority are negatively and significantly connected with credit and liquidity risk [21]. Male CEOs take greater risks than female CEOs, and the number of board meetings has an inverse association with Islamic bank risk in the middle east. Bank size, on the other hand, has no effect on the amount of risk in Islamic banks, but leverage has an inverse connection with bank risk.

Founders' leadership (on the board of directors) correlates with greater levels of company risk, but the impact of founders' descendants on the board is inverse in Chilean. Political instability has a detrimental and statistically significant impact on the risk-taking of Chilean family businesses [22]. Internal-control willingness has a strong favorable influence on the internal-control level, which can fairly accomplish the internal-control subjective initiative assessment [23]. It indicates that the desire to implement internal controls reduces business risk-taking. Government-owned businesses increase their readiness to improve internal controls, and their risk-taking level is substantially lower than that of non-state-owned enterprises.

According to the data, female board directors and executives in Italy are much more risk averse and less overconfident than their male counterparts. Confirmation of a negative relationship between risk-taking and gender diversity. Women-led banks are less dangerous [24]. Chatjuthamard, Jiraporn and Lee [25] posit that organizations with greater gender diversity on their boards give more potent CEO risk-taking incentives. Female directors' risk aversion appears to enhance managers' risk aversion, resulting in a suboptimal level of risk-taking.

Board diversity has a good influence for risk-taking commercial banks in Indonesia. In Indonesia, the size and diversity of the board of directors have a substantial impact on risk [26]. Umar, Abduh and Besar [27] report that audit committee (AC) size, independence, and the number of audit committee (AC) members from foreign nations all have a substantial negative association with Islamic bank risk-taking.

The board member's typical heterogeneity leads in "faultlines," which may lead to internal team disputes and have an influence on their decision-making quality, which may further damage their risk taking [28]. The study on Chinese listed companies reflected that board faultlines reduce corporate risk taking. Board faultlines impair company risk-taking capability, mostly manifesting as a decrease in idiosyncratic risk-taking. The influence of faultlines is mostly driven by cognitive faultlines [29].

On the basis of the research findings of prior studies, this study hypothesizes the following relationships:

H1: Board of directors are positively associated with risk-taking.

H2: Board of directors take less risks during crisis.

3. Methodology

3.1. Data Collection

In our study, we employ hypothesis testing through multiple linear regression analysis using the tools provided by Stata Corp to examine the research model and establish a relationship between the dependent variable, independent variables, and control variables. Specifically, we utilize STATA Version 17.0 for conducting the analysis. This study utilizes data from the S&P Capital IQ database. The sample comprises of financial firms listed on the Muscat Stock Exchange, resulting in a total of 168 firm year observations (28 firms) over a 6-year period spanning from 2016 to 2021. The research model will also be examined before (2016 to 2018) and during COVID (2019-2021) period.

3.2. Research Model

$$\text{Corporate Risk}_{i,t} = \beta_0 + \beta_1 \text{BoardIndex}_{i,t} + \beta_2 \text{ControlVariables} + \varepsilon \quad (1)$$

Where Table 1 presents the variables definition

Table 1. Variable Definition

Variable	Measurement	Source
<i>Dependent Variables</i>		
Corporate Risk Taking	Natural logarithm of the sum of research and development (R&D), capital expenditures, and acquisition costs	[30]
<i>Independent Variables</i>		
BoardIndex	The index comprises of seven corporate governance components that includes: i) Bank ownership - a value of 1 if the member(s) of the board own share(s), and 0 otherwise; (ii) Ownership control – a value of 1 if the shareholder(s) have the ability to hold cash flow rights and whether the right to vote amounts to 10% or more; (iii) CEO Duality - 1 if CEO duality is absent, and 0 otherwise; (iv) Board structure - 1 if more than 50 percent of the directors are non-executive directors, and 0 otherwise; (v) Audit independence - 1 if the bank is audited by independent auditor(s), specifically the top 4 auditing firms; (vi) Audit committee - 1 if an audit committee is present, and 0 otherwise. Board gender diversity – 1 if a woman is present, and 0 otherwise.	[31]
<i>Control Variables</i>		
Firm Size	Natural Logarithm of Total Assets	[32-34]
Firm Age	Natural logarithm of the number of years	[35]
Leverage	Leverage is calculated as the ratio of a company's total liabilities to its total assets	[32, 35]
Tangibility	Tangibility is the ratio of tangible fixed assets to total assets	[32, 35]
Return on Equity	The Net income that is divided by the shareholder funds is equal to Return on Equity (ROE).	[32, 35]
Liquidity	The liquidity ratio is calculated by dividing current assets by current liabilities	[32, 35]
Firm Growth	Growth of sales over last year	[32, 35]
MTB	The market-to-book ratio as a measurement tool of corporate performance in the model	[32, 35]

4. Results and Discussion

4.1. Descriptive Statistics

Table 2. Descriptive Statistics

Variable	Obs	2016-2021		2016-2018			2019-2021		
		Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Corporate Risk	168	-.11	.89	84	-.13	.84	84	-.1	.94
Board Index	168	5.16	1.34	84	5.08	1.46	84	5.24	1.21
Firm Size	168	2.66	.81	84	2.64	.79	84	2.69	.84

Firm Age	168	23.86	10.69	84	22.36	10.61	84	25.36	10.61
Leverage	168	.61	.89	84	.64	.94	84	.58	.84
Tangibility	168	.04	.11	84	.04	.12	84	.03	.09
ROE	168	.05	.08	84	.06	.07	84	.04	.09
Liquidity	168	1.55	.93	84	1.54	.94	84	1.55	.94
Firm Growth	168	3.3	22.15	84	8.49	23.21	84	-1.88	19.85
MTB	168	.76	.36	84	.85	.38	84	.67	.32

Table 2 shows the descriptive statistics for the variables. There are 168 firm observations from the year 2016-2021. Regarding dependent variable corporate risk, the minimum and maximum values of -2.1 and 1.58 and the mean value is negative -.11, on the other hand for independent variable board index the minimum and maximum value is 1 and 7 respectively. The firm observations are 84 before (2016-2018) and during (2019-2021) COVID respectively. The average value of corporate risk was -.13 and -.10 before and during COVID respectively. Whereas the mean for the independent variable board index has a mean value of 5.08 and 5.24 before and during COVID respectively.

4.2. Correlation Analysis

Table 3. Descriptive Statistics

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Corporate Risk	1.00									
(2) Board Index	0.21***	1.00								
(3) Firm Size	0.79***	0.42***	1.00							
(4) Firm Age	0.45***	0.22***	0.45***	1.00						
(5) Leverage	0.07	0.44***	0.26***	0.07	1.00					
(6) Tangibility	0.00	0.03	-0.04	-0.16**	-0.16**	1.00				
(7) ROE	0.26***	0.02	0.28***	0.16**	0.10	-0.16**	1.00			
(8) Liquidity	0.71***	0.35***	0.84***	0.36***	0.05	0.03	0.20**	1.00		
(9) Firm Growth	0.05	-0.11	0.00	-0.17**	-0.11	0.20***	0.17**	0.04	1.00	
(10) MTB	0.06	-0.30***	0.00	-0.07	-0.18**	-0.11	0.24***	0.00	0.15**	1.00

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3 shows the Pearson correlation between the dependent variable (corporate risk), independent variable (board index) and control variables. The results evidence a significant positive correlation between that corporate risk and board index. A significant positive correlation was also found between corporate risk and four control variables, specifically, a significant positive relationship was found between corporate risk and the firm size with a value of 0.79, the liquidity with a value of 0.71, the firm age with a value of 0.45 and the ROE with a value of 0.26.

4.3. Regression Analysis

Table 4. OLS regression results

	All years 2016 - 2021 (1) Corporate Risk	Prior to the Pandemic 2016-2018 (2) Corporate Risk	During the Pandemic 2019 - 2021 (3) Corporate Risk
Board Index	-0.0776* (0.048)	-0.0191 (0.692)	-0.174** (0.010)
Constant	-2.182*** (0.000)	-2.401*** (0.000)	-2.014*** (0.000)
Control Variables	Included	Included	Included
Year dummy	Included	Included	Included
Observations	168	84	84
F	21.96	13.84	15.42
r2	0.668	0.679	0.702
p	0.000	0.000	0.000

p-values in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The relationship between business risk-taking and board index is demonstrated in Table 4. The OLS regression analysis is conducted for the entire period (2016–2021) as well as separating the times, prior to the pandemic (2016–2018) and during the epidemic (2019–2021). The OLS analysis reflects a negative relationship between the board index and corporate risk in Oman's financial listed enterprises. The board index coefficient is statistically significant and negative in the total period (-0.0776*). However, the coefficient for board index is only significant during the pandemic (-0.174**), while there was no significant relationship between the risk-taking decisions and the board dynamics before the pandemic [36]. This indicates that the financial sector board of directors had a cautious approach during the pandemic and avoided risks.

The results also include the impact of control variables on corporate risk that are not shown for brevity. The results show a significant positive association between firm size and corporate risk. This result complies with prior studies [37] that evidenced a positive and strong link between firm size and risk-taking. The firm age has a significant positive relationship with corporate risk-taking decisions during the period of the analysis (2016-21), while the relationship was positive but not significant during the period prior to the pandemic or during it. Prior to the pandemic, leverage had a positive and significant association with risk-taking, whereas after the pandemic, tangibility had a strong positive link with risk-taking [38].

4.4. Robustness Check

Table 5. Dynamic estimation GMM results

	All years 2016 - 21 (1)	Prior to the Pandemic 2016-2018 (2)	During the Pandemic 2019 - 2021 (3)
	Corporate Risk	Corporate Risk	Corporate Risk
L. Corporate Risk	0.0205 (0.697)	-0.0381 (0.619)	0.0322 (0.636)
L. Board Index	-0.0259 (0.652)	-0.0448 (0.280)	-0.0498 (0.808)
Board Index	0.0354 (0.739)	-0.184 (0.060)	-0.498** (0.001)
Constant	-2.423* (0.030)	-2.378*** (0.000)	-3.082** (0.006)
Control Variables	Included	Included	Included
Year Dummy	Included	Included	Included
Observations	167	83	84
chi2	573.3	515.2	2100.3
Instruments	45	35	48
p	0.000	0.000	0.000
AR1p	0.0146	0.0288	0.230
AR2p	0.0688	0.0598	0.143
Sargan p	0.111	0.0423	0.0915
Hansen p	0.998	0.903	0.999

p-values in parentheses * p < 0.05, ** p < 0.01, *** p < 0.001

Table 5 presents the dynamic GMM estimation results for all the financial sector companies. The values of second order correlation (AR2) in columns 1, 2 and 3 show no autocorrelation issue for any of the models. The null hypothesis for Hansen's test is not rejected, therefore, the presence of exogeneity and validity of the instruments used. The findings of GMM regression result support the result of the OLS regression demonstrated in Table 3. A negative impact of board dynamics on corporate risk is shown during the pandemic (2019 – 2021), while it is not significant but during the period of analysis (2016 – 2021). Our model continues to reflect the cautious approach adopted by the financial sector's strong board of directors that took less risks.

5. Conclusion

The objective of this study was to explore the relationship between board index and the level of risk taken by non-financial sector firms in Oman. Additionally, the study examined the impact of board index before and during

the outbreak. The results of the OLS regression analysis indicate that, throughout the entire research period and during the pandemic, strong board attributes are linked to lower business risk taking. However, before the epidemic, the relationship between board index and company risk was negligible. The robustness of these findings is confirmed by the dynamic GMM model.

The results of the study have both practical and theoretical significance. Strong board dynamics are crucial for a corporation to effectively respond to external developments and undertake risky decisions. The enhancement of governance practices can lead to improved risk management procedures and decision-making processes. In Oman, there is a chance to enhance board dynamics by increasing board independence, diversity, and competence. During the pandemic, suboptimal board dynamics were found to be more vulnerable to economic shocks and crises. Hence, it is essential for companies to work on their governance structures during stable periods to ensure economic resilience in their operations.

This investigation is constrained by its confinement to financial sector firms functioning in an emerging economy, which may pose challenges in extrapolating the outcomes to other markets and sectors. Nevertheless, forthcoming research endeavors can broaden the study's scope by exploring the impact of board index in the financial sector, as well as in other emerging, developing, and developed economies. Additionally, the research's sampling period, which excludes the fiscal year 2022, could be extended in future research initiatives, both pre- and post-pandemic. Lastly, further research could examine the consequences of the pandemic's aftermath.

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